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PSY64

COST-EFFECTIVENESS ANALYSIS OF PREGABALIN IN THE TREATMENT OF CENTRAL NEUROPATHIC PAIN

Karbusicka M[1], Kolek M[1], Duba J[1], Vothova P[2], Dolec kova J[1]

[1]OAKS Consulting s.r.o., Prague 9, Czech Republic, [2]Pfizer, spol. s r. o., Prague 5, Czech Republic

OBJECTIVES: To compare costs and effectiveness of pregabalin compared to placebo in the treatment of central neuropathic pain (CNP) from the perspective of the public healthcare payer in the Czech Republic. **METHODS:** A de novo micro-simulation model was developed in MS Excel comparing pregabalin treatment of CNP versus placebo as there is no other treatment of CNP available and reimbursed in the Czech Republic. The improvement of patients' pain intensity expressed as the decrease in VAS (Visual Analog Scale (0-100) score was modelled during the 24 week time horizon. The changes of VAS score were estimated for each intervention using a regression functions of time and the baseline VAS score. Utilities were assigned to each VAS score according to the regression equations expressing the dependence of utility value on average weekly VAS score of CNP patients. Relevant costs (reflecting payer's perspective) were defined as costs of pharmacotherapies, outpatient care related to drug application, management of treatment, treatment of adverse events and concomitant medication were considered. **RESULTS:** The incremental cost-effectiveness ratio (ICER) of pregabalin compared to placebo reached 8,335.22 EUR per Qualy-adjusted-life-year (QALY) gained. The probability of pregabalin being cost-effective (ICER under willingness to pay 39,876.74 EUR) was 100%. **CONCLUSIONS:** Pregabalin is the only option for the treatment of CNP in the Czech Republic and brings significant pain relief for patients. Treatment with pregabalin also results in low ICER and can be considered a cost-effective treatment of central neuropathic pain in the Czech Republic.

PSY65

COST-EFFECTIVENESS OF USTEKINUMAB IN THE TREATMENT OF PSORIASIS IN FINLAND

Väätäinen S[1], Soini EJ[1], Valgardsson VS[2], Mälkönen T[3]

[1]ESIOR Oy, Kuopio, Finland, [2]Janssen-Cilag AS, Oslo, Norway, [3]Helsinki University Hospital, Skin and Allergy Hospital, Helsinki, Finland

OBJECTIVES: To evaluate the cost-effectiveness of ustekinumab in the treatment of psoriasis in the Finnish setting. **METHODS:** A sequential Markov cohort model was programmed in Excel using Visual Basic for Applications. First, the most frequently used treatment sequence (ustekinumab -> adalimumab -> etanercept -> infliximab -> maintenance, Finnish "current care") was compared to the most used sequence prior to ustekinumab's market authorization (adalimumab -> etenarcept -> infliximab -> maintenance, "past care" in Finland) in a confirmatory analysis setting. Then the incremental cost-effectiveness of all relevant treatment sequences was explored to find out the health economic relevance of current and past care sequences. The primary analysis outcomes were direct payer costs and quality-adjusted life years (QALY) gained. Secondary outcomes included Psoriasis Area and Severity Index (PASI) response years gained and Dermatology Quality of Life Index (DLQI) years avoided. Drugs, follow-up, drug administration, laboratory tests, adverse events and treatment failures as well as direct costs to patient were included as costs at 2014 price level. Initial treatment efficacy was based on a Bayesian network meta-analysis of randomized clinical trials, and treatment persistence was modeled based on recent real world registry studies. All results were discounted with 3% per annum during the 5-year modelling timeframe. **RESULTS:** The total discounted 5-year costs were €74,383 for the current care and €76,847 for the past care sequence. The respective QALYs were 3.895 and 3.825. Thus, the current care using ustekinumab dominated the past care without ustekinumab. PASI and DLQI results were in line with QALY results. Results were robust in the performed sensitivity analyses. Furthermore, in the explorative analysis of all relevant treatment sequences, ustekinumab was always part of the cheapest sequence. **CONCLUSIONS:** Ustekinumab is the most cost-effective treatment in the current Finnish psoriasis treatment practice, and its use is both clinically and health economically relevant.

PSY66

COST-MINIMIZATION ANALYSIS AND TOTAL COST ANALYSIS FOR A WEIGHT RANGE IN CROHN'S DISEASE TREATMENT WITH ANTI-TNF BIOLOGICS UNDER BRAZILIAN PRIVATE HEALTH CARE SYSTEM PERSPECTIVE

Menezes FG, Chibana V

AbbVie Brazil, São Paulo, Brazil

OBJECTIVES: The aim of this study was to describe the total treatment costs related to Crohn's Disease treatment with biologics and to evaluate these costs based on the most prevalent weight range. **METHODS:** A cost-minimization analysis was performed among adalimumab-subcutaneous (ADA) and infliximab-intravenous (IFX) to compare the total treatment costs in Crohn's disease according to the Brazilian Private HealthCare System perspective. Total treatment cost was calculated based on the dose per application, number of vial/syringe, cost of application and median and range of weight. These inputs were based on scientific literature. Yearly treatment cost was calculated for patients with a median of 68kg, according to doses defined in product labels. A cost analysis for a weight range was performed. Drug prices were based on Factory Prices plus 18% taxes (CMED source). An univariate analysis was performed to determine the impact on results. **RESULTS:** The median patient weight used in this analysis was 68±4,08kg (Weight range: 64 to 72kg - normal distribution). For IFX the Medication Cost was R$92.478,12, Application Cost was R$2.360,33 and the Total Treatment Cost was R$94.838,45. For ADA the Medication Cost was R$85.807,15, Application Cost was R$3.788,98 and the Total Treatment Cost was R$89.596,13. Comparing the scenario with IFX and ADA, the treatment with ADA presented a savings of R$5.242,32 per patient/year. The weight interval cost analysis presented a savings for ADA of R$5.242,32 per patient/year in a range of 64 to 72kg. In sensitivity analysis ADA presented economic savings in most scenarios, the variation of IFX vial and ADA syringe costs are important factors that could modify the sensitivity analysis. **CONCLUSIONS:** The treatment of Crohn's disease with ADA compared to IFX presented an economic savings for nearly 68% of patients with Crohn's Disease in the Brazilian Private HealthCare System.

PSY67

COST-EFFECTIVENESS MODELLING FOR NEUROPATHIC PAIN TREATMENTS: AN EXPLORATION TO IDENTIFY COMPARATIVE IMPORTANCE OF MODEL PARAMETERS

Critchlow S[1], Hirst M[2], Sullivan W[1], Dunlop W[2]

[1]BresMed Health Solutions, Sheffield, UK, [2]Mundipharma International Ltd, Cambridge, UK

OBJECTIVES: To provide an open-access model and illustrate how this can be used as a first step in the early economic evaluation of emerging neuropathic pain products, enabling the understanding of important parameters in the assessment of therapies. **METHODS:** We closely replicated a model structure created by NICE to inform guideline development in neuropathic pain. The structure was replicated as R code for ease of exposition. Costs were updated to reflect 2014 prices. The exploratory analysis considered a hypothetical drug 'Product X' versus pregabalin, a product used widely in neuropathic pain. The analysis explored the percentage premium over the price of pregabalin that would result in an ICER at the NICE threshold of £20,000 when varying efficacy parameters. **RESULTS:** A 30% improvement over pregabalin in the proportion of patients achieving a 30-49% reduction in pain could justify a price premium of 39%, whilst a 30% improvement in the proportion of patients achieving ≥50% improvement could justify a premium of 170%. If 'Product X' provides no analgesic improvement but causes 30% fewer adverse events and related withdrawals, a premium of 27% could be justified. **CONCLUSIONS:** The analyses presented highlight how this transparent model can be used as a tool for identifying parameters of importance in the early economic evaluation in neuropathic pain. The R code underpinning these analyses is made readily available and we welcome the ISPOR community to use, adapt and provide comments on how to refine and improve this model for future use.

PSY68

COST-UTILITY ANALYSIS OF ADALIMUMAB FOR THE TREATMENT OF MODERATE-TO-SEVERE ULCERATIVE COLITIS IN PATIENTS IN SPAIN

Wang S[1], Yang H[2], Yang M[2], Bao Y[1]

[1]AbbVie Inc., North Chicago, IL, USA, [2]Analysis Group, Inc., Boston, MA, USA

OBJECTIVES: Treatments for patients with moderate-to-severe ulcerative colitis (UC) include biologic (adalimumab [ADA], infliximab [IFX], and golimumab [GOL]) and non-biologic therapies (anti-inflammatory drugs and immunosuppressants). Non-biologic therapy is standard of care (SOC). We evaluated the cost utility of ADA+SOC vs SOC alone and assessed the total cost difference of ADA+SOC vs IFX+SOC and GOL+SOC for treating moderate-to-severe UC in patients with inadequate response to non-biologic therapy in Spain. **METHODS:** A Markov model was developed to simulate treatment and disease progression for UC patients, which considered 8 health states: 3 pre-surgery (remission, mild, and moderate-to-severe), surgery, and 4 post-surgery (no complication, transient complication, chronic complication, and death). The model assumed no difference in efficacy of biologic therapies. Transitional probabilities of pre-surgery, surgery and post-surgery states were derived from clinical trials of ADA and published literature. Health utility and cost inputs came from literature. Only direct costs were considered in the base case. Results were expressed in costs per quality-adjusted life-year (QALY) gained for ADA+SOC vs SOC alone and total cost differences for ADA+SOC vs IFX+SOC and GOL+SOC. Deterministic and probabilistic sensitivity analyses (DSA, PSA) were performed. **RESULTS:** The incremental costs per QALY gained for ADA+SOC vs SOC alone were €46,815 over a 10-year time horizon (2013 euro). Results from DSA ranged from €33,622 (when indirect costs were considered) to €49,083 (when the utilities of health states were changed). PSA revealed that ADA+SOC was cost-effective in 61% and 84% of the simulations at €50,000/QALY and €60,000/QALY thresholds, respectively. Compared with IFX+SOC and GOL+SOC, ADA+SOC was associated with cost savings of €8,570 and €37,113, respectively. DSA and PSA results showed that ADA+SOC led to cost savings in all scenarios. **CONCLUSIONS:** For UC, the ADA+SOC strategy demonstrated reasonable cost-effectiveness value compared with SOC alone and was cost-saving compared with IFX+SOC and GOL+SOC, in Spain.

PSY69

COST-UTILITY OF BARIATRIC SURGERY IN BELGIUM, DENMARK, AND ITALY

Borisenko O[1], Burdukova E[1], Hargreaves J[2], Adam D[1], Funch-Jensen P[3]

[1]Synergus AB, Stockholm, Sweden, [2]Covidien (UK) Commercial Ltd, now part of Medtronic, Hampshire, UK, [3]Aarhus University, and Aleris Hamlet Hospital, Aarhus, Denmark

OBJECTIVES: To evaluate the cost-utility of bariatric surgery in Belgium, Denmark, and Italy from a third-party payer perspective over a 10-year and a lifetime horizon. **METHODS:** A state-transition Markov model was developed, in which patients may experience surgery, post-surgery complications, diabetes mellitus type 2, cardiovascular diseases or die. Transition probabilities, surgery effectiveness and safety, costs, and utilities were informed by the literature, patient registries and administrative databases. Three types of surgeries were considered: gastric bypass, sleeve gastrectomy, and adjustable gastric banding. A base-case analysis was performed for the population of real surgical candidates in all countries. Cost data are presented in 2012 euros for Belgium, Italy and Denmark. **RESULTS:** In Belgium, in the base-case analysis over 10 years bariatric surgery led to incremental cost of €3,261 and generated additional 1.4 quality-adjusted life years (QALYs) with incremental cost-effectiveness ratio of €2,407/QALY. Over lifetime, surgery led to savings of €10,036, and generated additional 1.1 years of life, and 5.0 QALYs. In Denmark, in the base-case analysis over 10 years bariatric surgery led to incremental cost of €2,044 and

generated additional 1.5 QALYs with incremental cost-effectiveness ratio of €1,405 per QALY. Over lifetime surgery lead to savings of €5,032, additional 0.8 life years, and 4.1 QALYs. In Italy, in the base-case analysis over 10 years bariatric surgery led to incremental cost of €2,552 and generated additional 1.1 QALYs with incremental cost-effectiveness ratio of €2,314/QALY. Over lifetime, surgery led to savings of €8,874, and generated additional 0.5 years of life, and 3.2 QALYs. **CONCLUSIONS:** In a comprehensive decision analytic model, a current mix of surgical methods for bariatric surgery was cost-effective at 10 years and cost saving over the lifetime time horizon in three European countries.

PSY70

COST-EFFECTIVENESS AND COST-UTILITY ANALYSES COMPARING STRATEGIES FOR INITIAL TREATMENT OF RHEUMATOID ARTHRITIS USING PUBLISHED OUTCOMES: ECONOMIC LESSONS FROM THE TEAR TRIAL

Fuchs PA[1], Lal L[2], Fuchs HA[3], Swint J[4]
[1]*University of Texas Medical School at Houston, Houston, TX, USA,* [2]*Cardinal Health, Missouri City, TX, USA,* [3]*Vanderbilt University Medical Center, Nashville, TN, USA,* [4]*University of Texas School of Public Health, Houston, TX, USA*

OBJECTIVES: Controversy surrounds the most appropriate initial treatment regimen for Rheumatoid Arthritis. The objective of the present study is to aid in this debate by providing cost-effectiveness and cost-utility analyses for four treatment scenarios. **METHODS:** Estimates of costs were applied to outcome data from the Treatment of Early Aggressive Rheumatoid Arthritis (TEAR) Trial to determine cost-effectiveness. Treatment regimens from the TEAR trial, immediate etanercept (IE), immediate triple therapy (methotrexate, sulfasalazine, and hydroxychloroquine) (IT), step-up etanercept (SE), and step-up triple therapy (ST), were compared. Each regimen used methotrexate as a background medication. Outcomes analyzed include Disease Activity Scores (DAS-28-ESR) from the TEAR trial, calculated Clinical Disease Activity Index (CDAI) scores, and Quality-adjusted Life Years (QALYs) calculated using literature estimates. Discontinuers were assigned cost and outcome estimates based on duration of participation and associated outcomes. Analysis was limited to the two year time horizon of the TEAR trial. **RESULTS:** ST was cost-effective for all outcome measures, and had the highest net monetary benefit (NMB) for DAS-28-ESR ($592,569) and QALYs ($71,080), using a willingness to pay (WTP) of $250,000. IE was dominated for CDAI and had the lowest NMBs for DAS-28-ESR and QALYs, with incremental cost-effectiveness ratios (ICERs) of $1,025,534 and $8,205,670, respectively. SE was dominated for all outcomes. Results from one-way and probabilistic sensitivity analysis were consistent with these findings. **CONCLUSIONS:** The treatment strategies using etanercept were more costly than triple therapy strategies, with similar outcomes and ICERs outside most acceptable levels. SE was not cost-effective for any outcome, and ST was a consistently cost-effective treatment strategy.

PSY71

COST-EFFECTIVENESS ANALYSIS OF TOCILIZUMAB SUBCUTANEOUS AS FIRST LINE BIOLOGIC MONOTHERAPY FOR RHEUMATOID ARTHRITIS MANAGEMENT IN GREECE

Athanasakis K[1], Tarantilis F[1], Skroumpelos A[2], Kyriopoulos J[1]
[1]*National School of Public Health, Athens, Greece,* [2]*Roche (Hellas) S.A., Athens, UK*

OBJECTIVES: Rheumatoid Arthritis (RA) is a chronic, inflammatory disease, affecting 0.68% of adult population in Greece. RA is associated with decreased quality of life and a significant economic burden. The intravenous (IV) formulation of Tocilizumab (TCZ) has already proven its efficiency and thus the aim of this study is to evaluate and confirm the cost-effectiveness of the subcutaneous (SC) formulation as first line biologic monotherapy. **METHODS:** Lifetime costs and outcomes for 10,000 patients were projected through an individual simulation model. The analysis compared a standard treatment pathway (STP) (Adalimumab, Etanercept and Palliative care) with a similar pathway where treatment was initiated with TCZ SC. Health Assessment Questionnaire (HAQ) scores were used to reflect disease severity. The primary efficacy outcome considered was American College of Rheumatology (ACR) response. Patient baseline characteristics derived from the ADACTA trial. Efficacy data were elicited from a network meta-analysis. A mapping model transformed HAQ scores into QALYs. Clinical practice standards were determined by Expert Opinion (12 Rheumatologists). Costs for pharmaceuticals and unit costs for resources were obtained from official price lists. Estimated mandatory rebates for new products were taken into account. A third-party payer (Social Insurance) perspective was employed. Costs and QALYs were discounted at 3%. **RESULTS:** The treatment sequence starting with TCZ SC yielded 0.98 more QALYs (9.08vs. 8.10) at an additional cost of €27,442.5 (€132,733.78 vs. €105,291.27) compared to the STP.The Incremental Cost – Effectiveness Ratio (ICER) was estimated at €27,974.28 per QALY gained which is below the national commonly used threshold. Probabilistic Sensitivity Analysis confirms robustness of findings below a threshold of €45,000. **CONCLUSIONS:** The results of the analysis suggest that TCZ SC can be a cost-effective alternative and provide both patients and health care system with more options for RA management due to dual formulation's effectiveness and efficiency.

PSY72

COST-UTILITY OF BARIATRIC SURGERY IN FRANCE AND GERMANY

Borisenko O[1], Burdukova E[1], Hargreaves J[2], Adam D[1]
[1]*Synergus AB, Stockholm, Sweden,* [2]*Covidien (UK) Commercial Ltd, now part of Medtronic, Hampshire, UK*

OBJECTIVES: To evaluate the cost-utility of bariatric surgery in Germany and France from a third-party payer perspective over a mid-term (10 years) and a long-term (lifetime) horizon. **METHODS:** A state-transition Markov model was developed, in which patients may experience surgery, post-surgery complications, diabetes mellitus type 2, cardiovascular diseases or die. Transition probabilities, data about effectiveness and safety of surgery, costs, and utilities were informed by the literature, patient registries and administrative databases. Three types of surgeries were considered: gastric bypass, sleeve gastrectomy, and adjustable gastric banding. The model was internally and externally validated, the deterministic and probabilistic sensitivity analyses were performed to evaluate uncertainty. A base-case analysis was performed for the population of real surgical candidates in both countries. Cost data are presented in 2012 euros. **RESULTS:** In Germany, in the base-case analysis over 10 years bariatric surgery led to incremental cost of €2,909 and generated additional 0.03 years of life and 1.2 quality-adjusted life years (QALYs) with incremental cost-effectiveness ratio of €2,457/QALY. Over lifetime, surgery led to savings of €8,522, and generated additional 0.7 years of life, and 3.2 QALYs. In France, in the base-case analysis over 10 years bariatric surgery led to incremental cost of €1,106 and generated additional 1.3 QALYs with incremental cost-effectiveness ratio of €852/QALY. Over lifetime surgery lead to savings of €8,359, additional 0.5 life years, and 3.4 QALYs. In both countries surgery was also associated with reduction of incidence of diabetes and cardiovascular disorders. One- to three-year delay in provision of surgery led to reduction of clinical effectiveness, but had diverse impact on total cost in different patient cohorts. **CONCLUSIONS:** In a comprehensive decision analytic model, a current mix of surgical methods for bariatric surgery was cost-effective at 10 years and cost saving over the lifetime time horizon in Germany and France.

PSY73

COST-EFFECTIVENESS OF BARIATRIC SURGERY FOR THE TREATMENT OF OBESITY IN AUSTRALIA

Salton R
Center for Applied Health Economics, Brisbane, Australia

OBJECTIVES: Obesity is on the rise globally, especially in developed countries and Australia is no exception. Currently, the most effective treatment for sustainable weight loss is bariatric surgery. This study is the first of its kind to assess the cost-effectiveness of 3 bariatric surgery procedures in comparison with standard care in Australia. **METHODS:** A decision analytic model incorporating Markov process will be undertaken to compare adjustable gastric banding (AGB), Roux-en-Y Bypass (RYGB) and sleeve gastrectomy (SG) against standard care. The states will be based on BMI categories obtained from WHO and NICE guidelines. The cycle length will be one year and, owing to the limited availability of long-term data for bariatric procedures, the model will have a time horizon of 10 years. Utilities will be based on the SF-6D and transition probabilities will be derived from a network meta-analysis of BMI reductions as the treatment effect for the various comparators. Cost data will be obtained from the Australian Institute of Health and Welfare (AIHW). Construction of the model will be carried out via Microsoft Excel and the results will be presented as a comparison of costs and quality-adjusted-life years (QALYs) to generate ICERs for each of the interventions. One-way sensitivity analysis in addition to PSA will be carried out to test the robustness of the model in terms of the assumptions made and various input parameters. **RESULTS:** Construction of the model has already commenced and will be finished by mid-July; full completion of the write-up will be completed by the end of July. This research is carried out in conjunction between City University London and Griffiths University (Brisbane, Australia). **CONCLUSIONS:** To be completed by 15/07/2015.

PSY74

COST–UTILITY ANALYSIS OF ANTIHEMOPHILIC FACTOR RFVIII-FS FOR SECONDARY PROPHYLAXIS VS ON-DEMAND THERAPY IN SEVERE HAEMOPHILIA A IN ITALY

Tagliaferri A[1], Coppola A[1], Amoresano S[2], Aiello A[3], D'Ausilio A[3], Toumi M[4]
[1]*Reference Centre for Coagulation Disorders, Napoli, Italy,* [2]*Bayer Healthcare, Milano, Italy,* [3]*Creativ Ceutical, Milano, Italy,* [4]*Aix-Marseille University, Marseille, France*

OBJECTIVES: Haemophilia A causes a considerable burden on society. While prophylaxis in children aged ≤2y is now a gold standard treatment, the benefits of late secondary prophylaxis are still controversial. Aim of this study is to estimate the cost-utility of antihemophilic factor rFVIII-FS (Kogenate® FS) in secondary prophylaxis vs on-demand regimen from the Italian healthcare system (NHS) and society perspective. **METHODS:** An individual patient simulation model was adapted to estimate the costs and outcomes associated with secondary prophylaxis and on-demand treatment. The model follows a hypothetical cohort of 1000 patients in a lifetime period. The POTTER observational study represented the source for clinical data such as clothing factors regimens and consumption, adherence to prophylaxis, risk of joint and total bleeds, quality-of-life (QOL) scores and productivity loss. For other data such as intracranial haemorrhage and major surgery rate, data from published literature were used. Drugs costs were estimated using prices reimbursed by the NHS while hospital costs were estimated with national hospital (inpatient and outpatient) tariffs. Caregivers' or patients' productivity loss was estimated with Italian daily Gross Net Product per-capita. Costs and benefits were discounted at 6.0% in line with published economic evaluations on this subject. Incremental cost-effectiveness ratios (ICERs) were calculated. Model outcomes are expressed in terms of costs per quality-adjusted-life-years (QALY). **RESULTS:** As expected, mean lifetime costs are higher with secondary prophylaxis than with on-demand treatment. Secondary prophylaxis however determines better outcomes in bleeding reduction and better QoL. Using the NHS perspective (considering only direct healthcare costs) secondary prophylaxis shows an ICER vs on-demand of €51,202/QALY; a more favourable ICER of €45,432/QALY is shown when considering also indirect costs. **CONCLUSIONS:** Despite the high cost of the pharmacological treatment, antihemophilic factor rFVIII-FS in secondary prophylaxis represents a cost-effective approach compared with on-demand treatment.

PSY75

ECONOMIC EVALUATION OF DASATYNIB IN TREATMENT OF ADULT PATIENTS WITH PHILADELPHIA CHROMOSOME POSITIVE (PH+) ACUTE LYMBPHOBLASTIC LEUKEMIA (ALL) WITH RESISTANCE OR INTOLERANCE TO PRIOR THERAPY IN POLAND

Mucha J[1], Stelmachowski J[1], Walczak J[1], Pieniazek I[1], Obrzut G[1], Labak-Klimasara M[2]
[1]*Arcana Institute Ltd, Krakow, Poland,* [2]*Bristol-Myers Squibb Services Sp. z o.o., Warsaw, Poland*